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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,665	02/11/2005	Volker Hennige	265368US0XPCT	1535

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EXAMINER
RHEE, JANE J

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
04/14/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/524,665	HENNIGE ET AL.	
	Examiner	Art Unit	
	JANE RHEE	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28,30-31* is/are pending in the application.

4a) Of the above claim(s) *13-28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,30-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Rejections Withdrawn

1. The 35 U.S.C. Double Patenting rejection of claims 1-6 over copending application 10575734 has been withdrawn due to applicant's argument field on 1/8/08.

2. The 35 U.S.C. 102(b) rejection of claims 1-6,11,12,29 anticipated by Penth et al. has been withdrawn due to applicant's amendment field on 1/8/08.

3. The 35 U.S.C. 103(a) rejection of claims 7-10,30 over Penth et al. in view of Yamashita et al. has been withdrawn due to applicant's amendment filed on 1/8/08.

New Rejections

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-12,30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita et al. in view of Penth et al. (6299778).

As to claims 1,30-31 Yamashita et al. discloses a separator electrode unit capable of function in a lithium battery as a separator electrode unit, the unit comprising a porous electrode and a separator layer applied to the porous electrode (col. 8 lines 5-9), wherein the separator electrode unit comprises an inorganic separator layer (col. 6 lines 59).

Yamashita et al. fail to disclose wherein the inorganic separator layer comprises at least two fractions of metal oxide particles which differ from each other in their average particle size and/or in the metal the separator layer comprising metal oxide particles having an average particle size (D.sub.g) which is greater than the average pore size (d) of the pores of the porous electrode that are adhered together by metal oxide particles having a particle size (D.sub.k) which is smaller than the pores of the porous positive electrode.

Penth et al. teaches an inorganic separator layer which comprises at least two fractions of metal oxide particles which differ from each other in their average particle size and/or in the metal (col. 5 lines 1-7), the separator layer comprising metal oxide particles having an average particle size (D.sub.g) which is greater than the average pore size (d) of the pores of the porous electrode (col. 4 lines 65-67 and col. 4 lines 16-17) that are adhered together by metal oxide particles having a particle size (D.sub.k) which is smaller than the pores of the porous positive electrode (col. 4 lines 65-67, col. 4 lines 16-17) for the purpose of providing a permeable composite that can be produced simply at a reasonable price (col. 2 lines 3-15).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide, Yamashita et al. with an inorganic separator that comprises at least two fractions of metal oxide particles which differ from each other in their average particle size and/or in the metal the separator layer comprising metal oxide particles having an average particle size (D.sub.g) which is greater than the average pore size (d) of the pores of the porous electrode that are

adhered together by metal oxide particles having a particle size (D.sub.k) which is smaller than the pores of the porous positive electrode in order to provide a separator that can be produced simply at a reasonable price.

As to claim 2, Penth et al. teaches wherein the separator layer has a thickness (z) which is less than 100 D.sub.g and not less than 1.5 D.sub.g (col. 7 lines 36-38).

As to claim 3, Penth et al. teaches wherein the separator layer has a thickness (z) which is less than 20 D.sub.g and not less than 5 D.sub.g (col. 7 lines 36-38)

As to claim 4, Penth et al. teaches wherein the metal oxide particles having an average particle size (D.sub.g) which is greater than the average pore size (d) of the pores of the porous positive electrode are Al.sub.2O.sub.3 and/or ZrO.sub.2 particles (col. 4 line 54).

As to claim 5, Penth et al. teaches wherein the metal oxide particles having an average particle size (D.sub.k) which is smaller than the average pore size (d) of the pores of the porous positive electrode are SiO.sub.2 and/or ZrO.sub.2 particles (col. 4 line 54).

As to claim 6, Penth et al. teaches, wherein the metal oxide particles having an average particle size (D.sub.g) which is greater than the average pore size (d) of the pores of the porous positive electrode have an average particle size (D.sub.g) of less than 10 .mu.m (col. 4 line 67).

As to claim 11, wherein the unit is bendable down to a radius of 50 cm without damage, since Penth et al. teaches the same material for the separator-electrode unit

desired by the applicant, it is inherent that the unit is bendable down to a radius of 50 cm without damage.

Penth et al. teaches separator electrode unit described above for the purpose of providing a catalytically active composite that can be produced in a simple an economical process (col. 2 lines 3-7).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide, Yamashita et al. with the separator layer has a thickness (z) which is less than 100 D.sub.g and not less than 1.5 D.sub.g, a thickness (z) which is less than 20 D.sub.g and not less than 5 D.sub.g, wherein the metal oxide particles having an average particle size (D.sub.g) which is greater than the average pore size (d) of the pores of the porous positive electrode are Al.sub.2O.sub.3 and/or ZrO.sub.2, wherein the metal oxide particles having an average particle size (D.sub.k) which is smaller than the average pore size (d) of the pores of the porous positive electrode are SiO.sub.2 and/or ZrO.sub.2 particles, wherein the metal oxide particles having an average particle size (D.sub.g) which is greater than the average pore size (d) of the pores of the porous positive electrode have an average particle size (D.sub.g) of less than 10 .mu.m and wherein the unit is bendable down to a radius of 50 cm without damage in order to provide a catalytically active composite that can be produced in a simple an economical process (col. 2 lines 3-7) as taught by Penth et al.

As to claims 7-10, Yamashita et al. discloses a battery wherein the separator layer comprises a coating with shutdown particles which melt at a desired shutdown temperature (col. 5 lines 24-34), wherein the shutdown particles have an average

particle size (D.sub.w) which is not less than the average pore size (d.sub.s) of the pores of the porous separator layer (col. 7 lines 47-51) and that the shutdown particle layer has a thickness (z.sub.w) which ranges from about equal to the average particle size of the shutdown particles (D.sub.w) up to 10 D.sub.w (col. 7 lines 52-55) and wherein the separator layer has a porosity of from 30 to 70% (col. 8 lines 32-35).

Response to Arguments

5. Applicant's arguments filed 1/8/08 have been fully considered but they are not persuasive.

In response to applicant's argument that since Penth et al. discloses and suggest nothing about a lithium battery, one skilled in the art would not look to the battery art to solve any problem associated with Penth et al., Penth et al. teaches components of a battery such as cathode, anode and separator (col. 11 lines 26-29 and col. 1 line 22) therefore one skilled in the art would associate theses components with a battery. Especially since Penth et al. teaches that by connecting the composite as a cathode, the catalytically reductive effect of the composite can be used and by connecting the composite as an anode the catalytically oxidative effect of the composite can be used.

In response to applicant's argument that since Yamashita et al. requires an organic binder in the separator, the combination of Yamashita et al. and Penth et al. would not present the presently claimed invention which requires an inorganic separator layer, Yamashita et al. teaches a separator comprising inorganic particles and a binder in the amount of 1/500 to 5/3, therefore can be defined as an inorganic separator because the separator can consist of mostly inorganic particles and because the

applicant claimed that the inorganic separator *comprises* at least two fractions of metal oxide particles that differ from each other in particle size or in the metal which is not limited to consisting only metal oxide particles.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JANE RHEE whose telephone number is (571)272-1499. The examiner can normally be reached on M-F 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jane Rhee/
Primary Examiner, Art Unit 1795
4/1/08